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(71) Applicant(s)

Midland Industrial Holdings Plc

(Incorporated in the United Kingdom)

Midland House, Pleck Road, WALSALL,
West Midlands, WS3 9ES, United Kingdom

(72) Inventor(s)

John Hayward

(74) Agent and/or Address for Service

Marks & Clerk

Alpha Tower, Suffolk Street Queensway,
BIRMINGHAM, B1 1TT, United Kingdom

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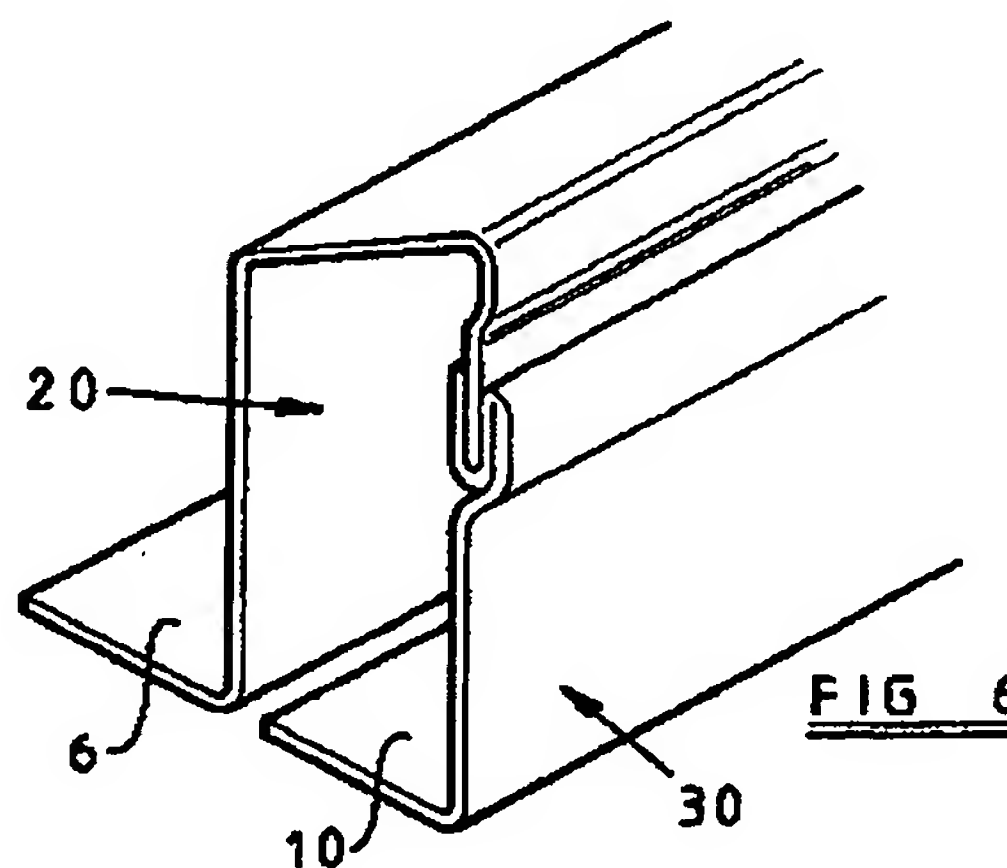
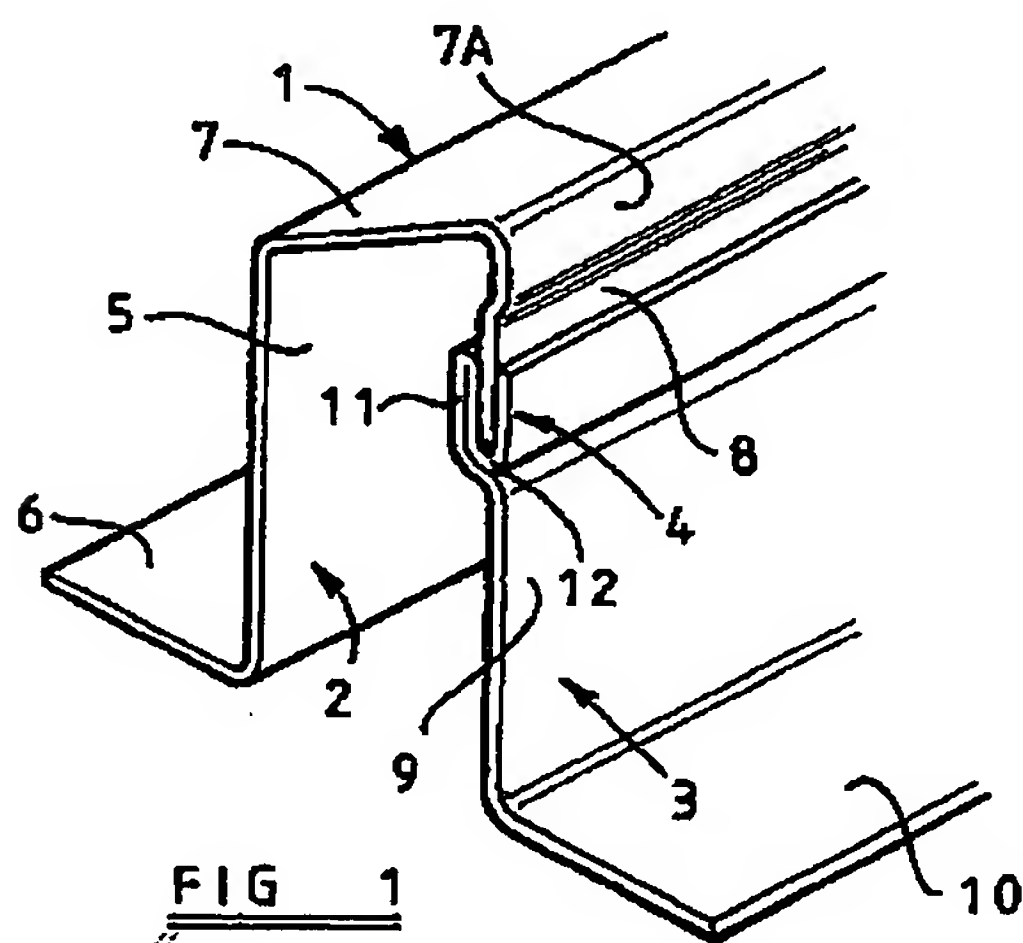
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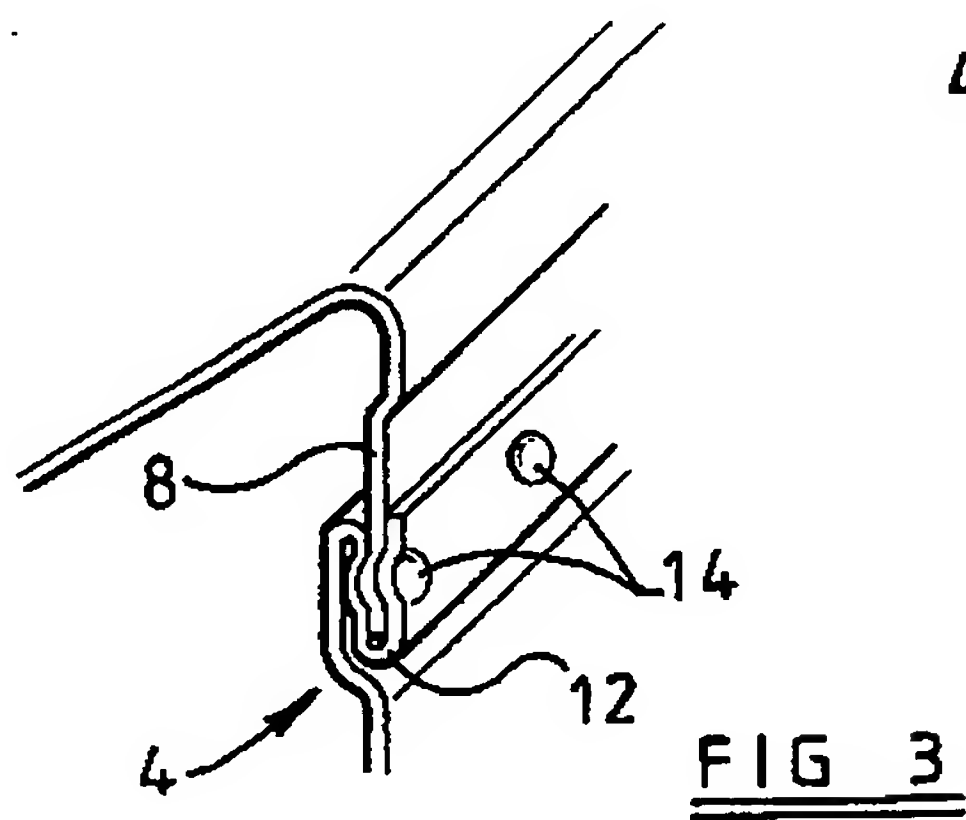
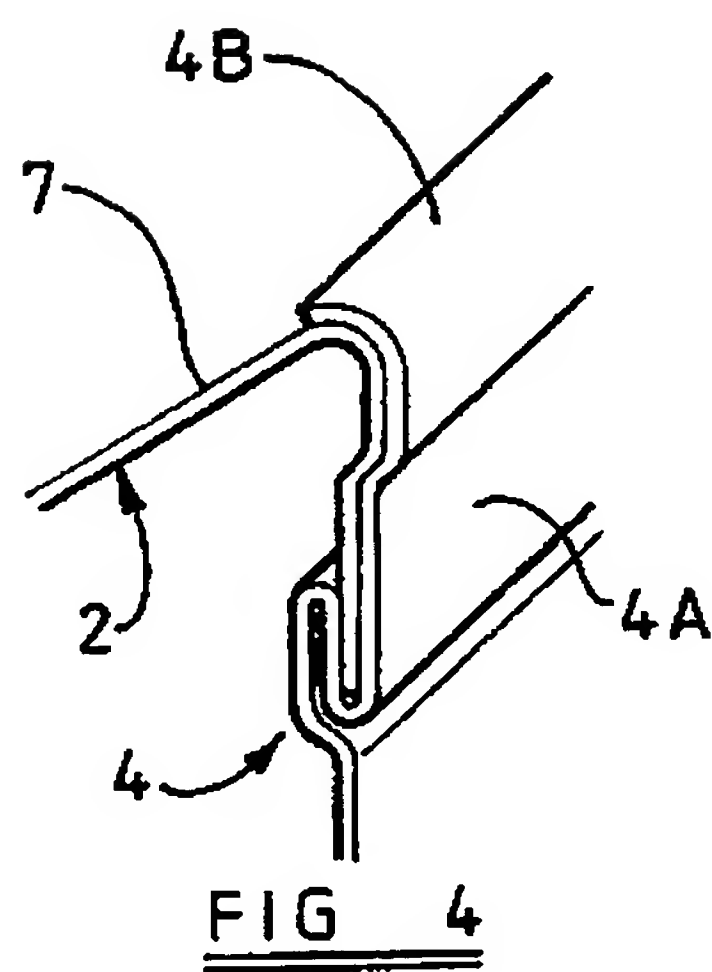
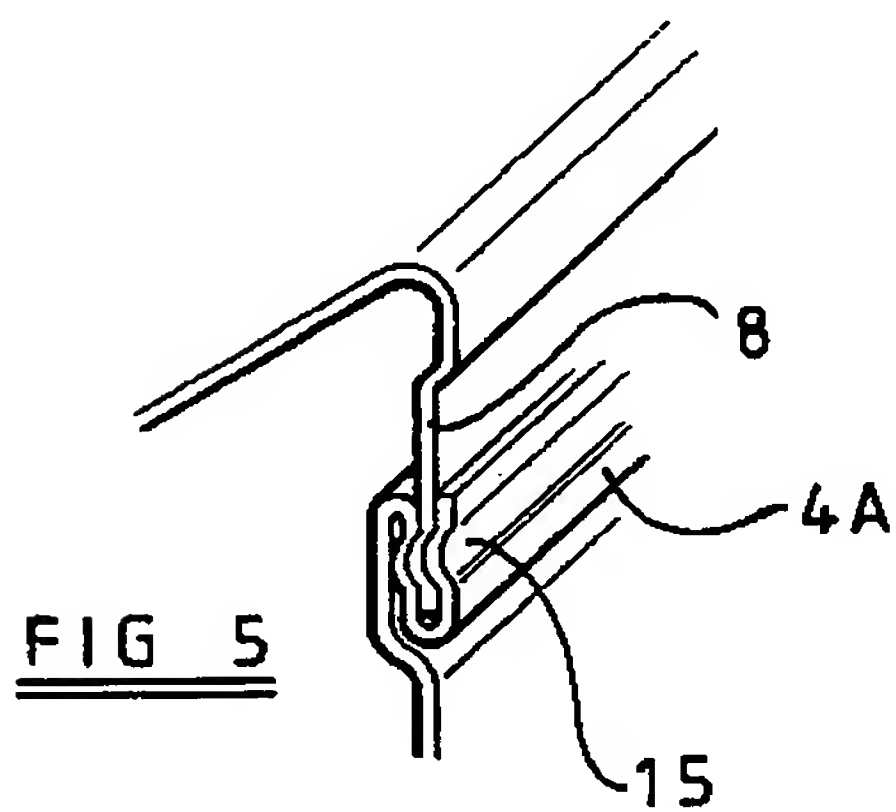
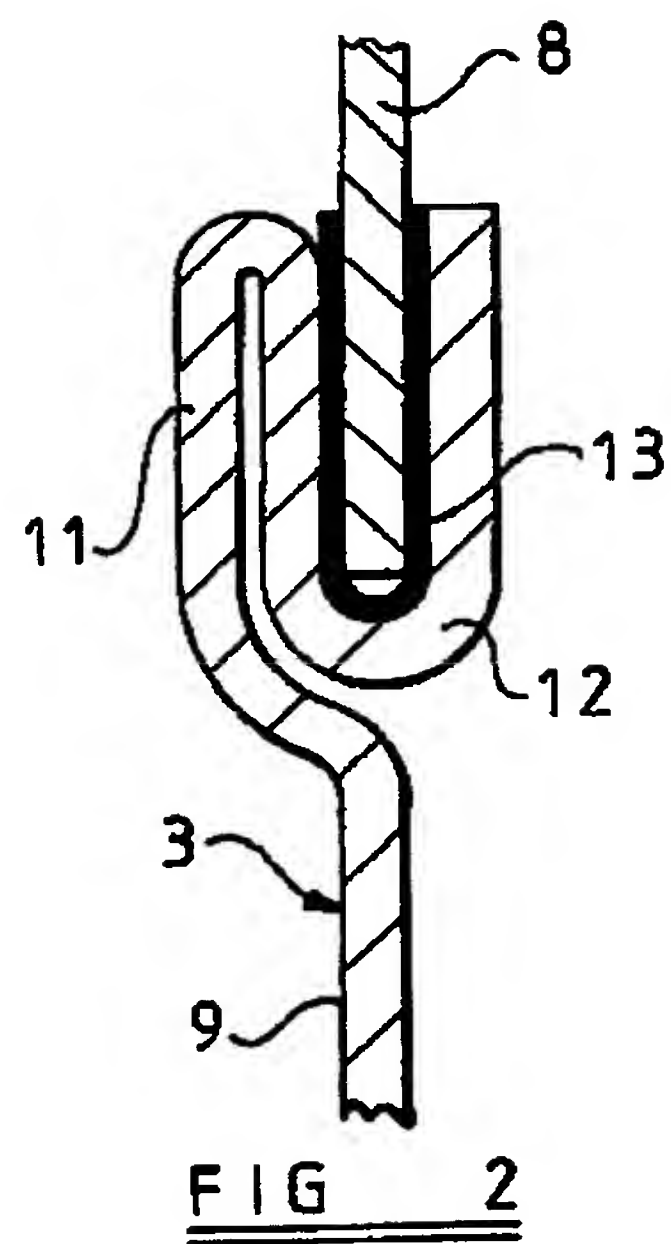
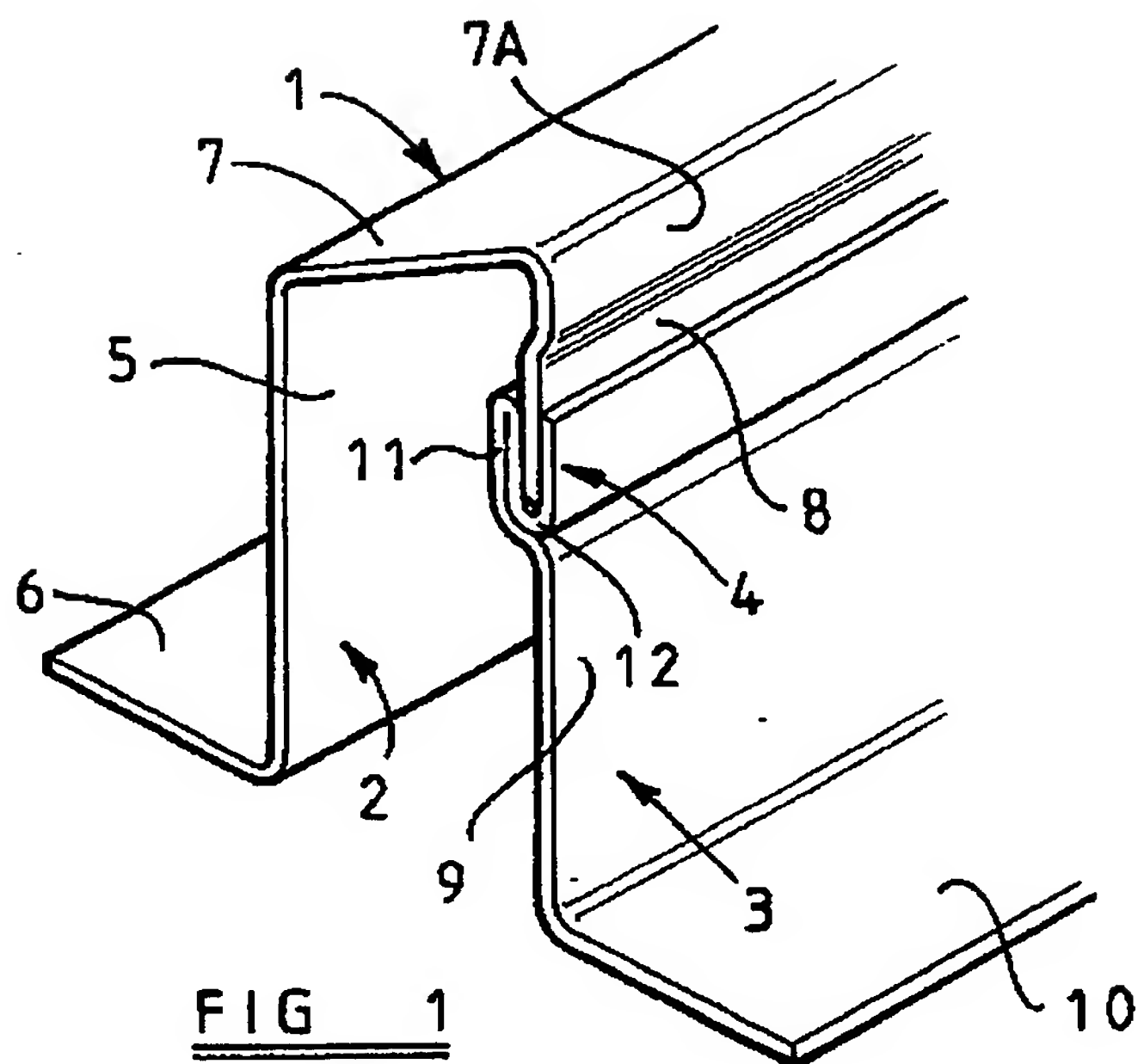
UK CL (Edition N) E1D DCA DCB DF179 DF190 DF194
DK DRE
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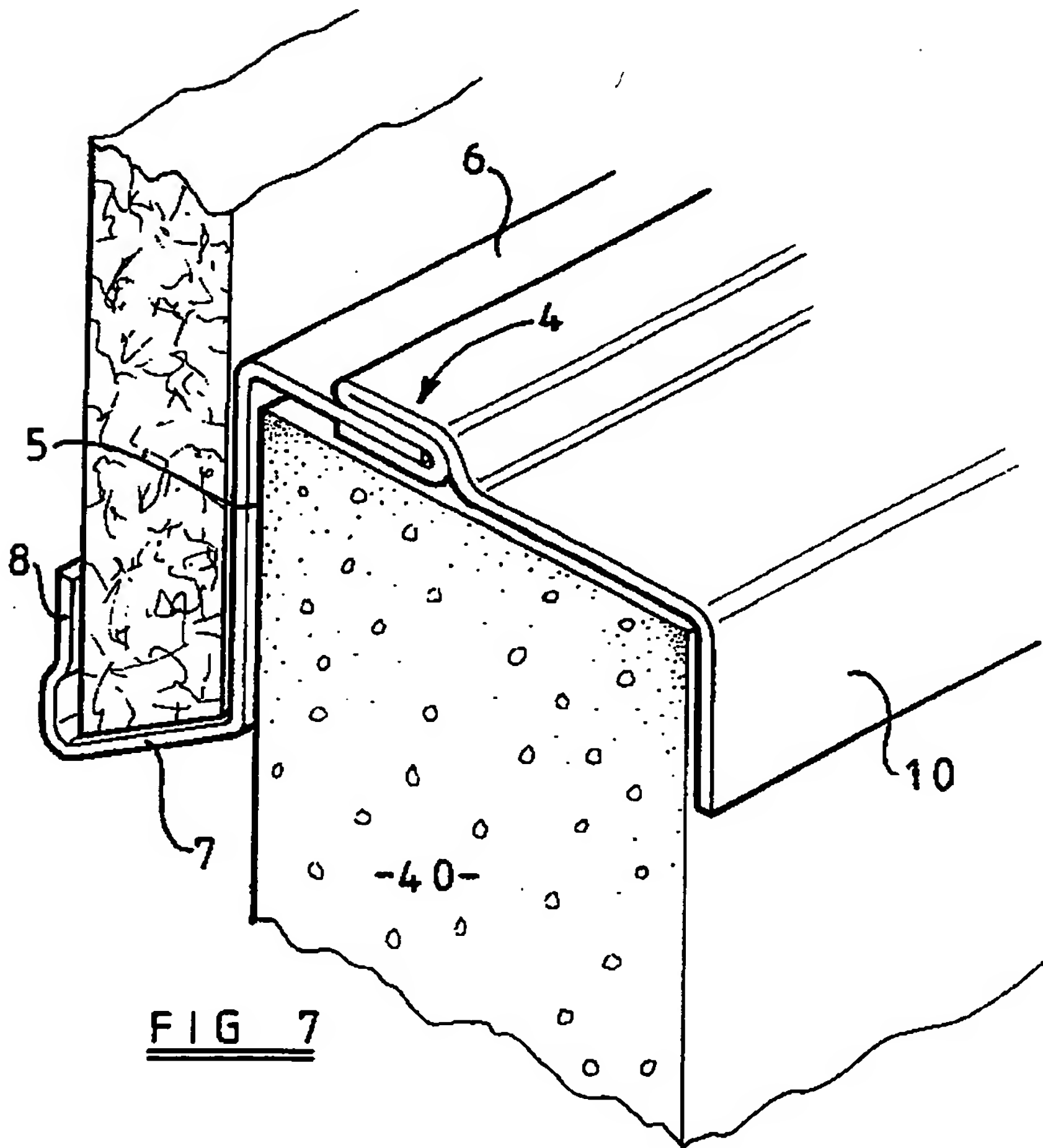
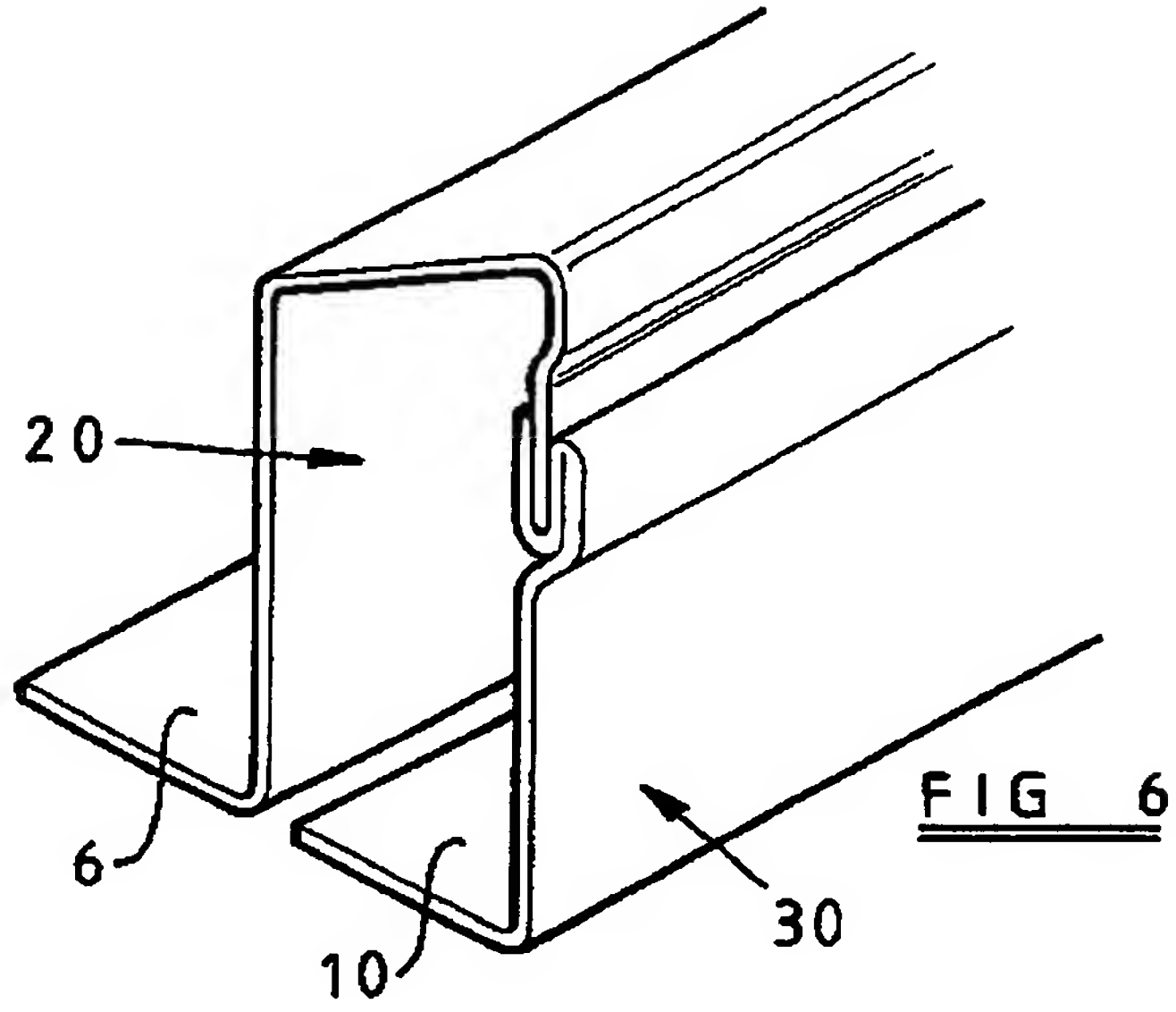
(54) Structural component, e.g. lintel

(57) A structural component (1) e.g. a lintel formed from a plurality of separately made interconnected parts (2, 3) which are arranged so that they may be alternatively interconnected so as to form at least two respectively different configurations of the component. A thermal insulating means may be interposed between the parts, being preferably incorporated in a joint (4) between the parts. In a further configuration, an S-sectioned support member is formed (Fig. 7, not shown), which can be used for supporting cladding from a wall.



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STRUCTURAL COMPONENT

This invention relates to a structural component for use principally in the construction of buildings and is primarily, but not exclusively concerned with lintels and similar components.

Some conventional structural components, such as lintels, suffer from the disadvantage that they cannot be readily adapted, either in the factory or on site, according to particular dimensional or operational requirements. Moreover, lintels and similar components are often used above windows and doors for example, with the component subject, at either side thereof respectively, to the external temperature and to the internal temperature of a building, leading to significant heat loss through the component to the exterior.

An object of the present invention is to provide an improved structural component which is more adaptable, in use, than some conventional structural components and which, in at least some of its forms, is less susceptible to heat loss therethrough.

According to the invention, a structural component is formed from a plurality of separately made interconnected parts, the arrangement being such that the parts may be alternatively interconnected so as to form at least two respectively different configurations of the component.

Preferably, a thermally insulating means is interposed between the parts serving as a thermal break which reduces heat transmission between the parts. The parts may conveniently be joined together by separate or

integral connecting means and the insulating means is then preferably incorporated in the connecting means.

The invention will now be described, by way of example, with reference to the accompanying drawings in which:-

Figure 1 is a perspective view of part of one form of structural component of the invention;

Figure 2 is a cross-sectional view of a modified form of part of the component of Figure 1;

Figure 3 is a perspective view of an alternative modification to the same part of Figure 1;

Figure 4 is a perspective view of an alternative modification to the same part of Figure 1;

Figure 5 is a perspective view of a further alternative modification to the same part of Figure 1;

Figure 6 is a cross-sectional view of an alternative form of the component of the invention, and

Figure 7 is a cross-sectional view of a further alternative form of the component of the invention illustrated in use.

The structural component illustrated in Figure 1 is in the form of a lintel 1 which is composed of a pair of sub-components 2, 3 interconnected at

a joint 4. The component 2 has a main wall 5 which would normally be upright in use and from one longitudinal edge of which projects outwardly a flange 6 perpendicular thereto. From the other longitudinal edge of the wall 5 projects an inclined wall 7, an end portion 7A of which is bent inwardly to provide a connecting flange 8 lying offset towards and parallel to the wall 5. The other component 3 has a main wall 9 having a perpendicular projecting flange 10 extending oppositely to the flange 6 and being generally of similar dimensions. A portion of the wall 9 remote from the flange 10 is bent inwardly towards the wall 5 to provide a narrow wall portion 11 lying offset from and parallel to the wall 9. Connecting means is provided by further deforming the aforesaid end portion to form a U-shaped channel 12 within which the connecting flange 8 is received in order to interconnect the components 1 and 2 to form the complete lintel 1. The aforesaid offsetting of the flange 8 and wall portion 11 ensures that the connection 4 between the sub-components does not protrude outwardly beyond the common plane of the walls 9 and 7A. The possibility for interconnecting the two parts 2 and 3 provides great flexibility in that different shapes and sizes of lintel sub-components may be interconnected, at will, in order to provide a lintel ideal for a particular application. It also enables the two sub-components 2, 3 to be interconnected in alternative ways for different purposes, as will be described hereinafter.

Figure 2 illustrates an important modification in the form of an insulating element 13, as of plastics material for example, housed within the U-shaped channel 12 and receiving the inserted part of the flange 8 so as to maintain the interconnecting parts of the components in thermal isolation. This can be important when the lintel is used in a location, as is often the case, in which the walls 5 and 9 are associated respectively

with outer and inner skins of a building, the insulating element 13 minimising heat transmission between the components and thereby reducing heat loss from the interior of the building.

Figure 3 illustrates an alternative form of the connection 4, in which a number of dimples 14 are formed in the walls of the U-shaped channel 12, which in turn deform the portion of the flange 8 housed within the channel, in order to lock the sub-components permanently together. It will be understood that any alternative similar form of crimping may be employed to the same end.

Figure 4 illustrates an alternative modification to the connection 4, in which the outer wall 4A of the U-shaped channel is extended and deformed at 4B over the sub-component 2 so as to lie against the inclined wall 7 of the latter and thereby lock the sub-components permanently together.

Figure 5 illustrates an arrangement of the connection 4 similar to that of Figure 3, except that the individual dimple crimps are replaced by an elongate inwardly formed rib 15 in the wall 4A of the U-shaped channel, the other wall of the channel and the inserted part of the flange 8 being similarly deformed in order to lock the sub-components permanently together.

Figure 6 illustrates a further embodiment of the lintel which uses sub-components 20, 30 identical with those of the lintel of Figure 1. These are arranged, however, in a reverse manner relative to Figure 1 so that the flange 10 extends towards the flange 6 to form a lintel having an

enlarged substantially continuous foot formed by the adjacent flanges 6 and 10. This possibility provides for increased adaptability of use.

The sub-components already described can be assembled in a further alternative manner to form a load bearing assembly, as illustrated in Figure 7. In this case, the flange 6 serves as a tongue forming part of the connecting means, being inserted into the U-shaped channel 12, so that the wall 5 and flange 10 define between them a generally rectangular cavity to receive the upper portion of a wall 40. The inclined wall 7 and flange 8 define, with the wall 5, a channel which may usefully house an edge portion of cladding 41 extending over a part of the exterior of a building incorporating the wall 40.

The invention may be applied to structural components, and particularly to lintels, of various forms and sizes, according to requirements, as will be understood by a person skilled in the art. The parts of the component may be simply interfitted without positive retention, or alternatively, positively and permanently locked together. The thermal break may be of any convenient form and incorporated with the parts simply interfitted or locked together as aforesaid. In a further alternative form of the component, interfitting of the component parts may be achieved by simple overlapping of adjacent surfaces which are held together, in use, by adjacent structure, such as brickwork or the like in the case of a lintel.

CLAIMS

1. A structural component comprising a plurality of separately made interconnected parts, the arrangement being such that the parts may be alternatively interconnected so as to form at least two respectively different configurations of the component.
2. A component according to Claim 1, wherein a thermally insulating means is interposed between the parts, serving as a thermal break which reduces heat transmission between the parts.
3. A component according to Claim 1 or Claim 2, wherein the parts are joined together by separate or integral connecting means.
4. A component according to Claim 1, wherein the parts are joined together by separate or integral connecting means and the insulating means is incorporated in the connecting means.
5. A component according to Claim 3, wherein the connecting means includes a lengthwise recess on one of the parts and a complementary engaging tongue on the other part.
6. A component according to any one of the preceding claims, wherein the parts are permanently interconnected at the connecting means by material deformation and/or fastening devices.
7. A component according to Claim 5, wherein one of the components has a main wall portion and first and second lateral wall portions extending respectively to either side thereof in opposite

directions, the other component having a pair of mutually generally perpendicular arms, one of the arms forming the recess for reception of the tongue of the other component, such that the components may be assembled together so as to form generally a channel with oppositely extending lateral arms at the channel open end, or with the arms extending in the same direction at the channel open end, or with one of the arms providing a tongue of the connecting means engaging the recess thereof so that the interconnected parts provide oppositely facing adjacent channels having a common wall.

8. A component according to Claim 7, wherein one of the first and second lateral wall portions has a portion directed substantially parallel to the main wall portion to form the tongue for reception in the recess.

9. A component according to Claim 8, wherein a free end portion of the substantially parallel portion is offset towards the main wall portion, leaving a region of the parallel portion flush with the adjacent arm of the other component.

10. A structural component substantially as hereinbefore described with reference to Figures 1 and 2, Figure 3, Figure 4, Figure 5, Figure 6 or Figure 7 of the accompanying drawings.

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Patents Act 1977
Examiner's report to the Comptroller under Section 17
(The Search report)

Search Examiner
D LOVELL

Date of completion of Search
2 MAY 1995

Documents considered relevant
following a search in respect of
Claims :-
1-10

Relevant Technical Fields

(i) UK Cl (Ed.N) E1D (DCA, DCB, DF179, DF190, DF194,
DK, DRE)

(ii) Int Cl (Ed.6) E04C, F162

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent
specifications.

(ii) ONLINE DATABASE: DERWENT WPI

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| A: Document indicating technological background and/or state of the art. | &: Member of the same patent family; corresponding document. |

Category	Identity of document and relevant passages		Relevant to claim(s)
X,Y	GB 2217763 A	(POLLARD) note Figure 5	X: 1, 3, 5 Y: 2
Y	GB 2150610 A	(ALPHA-KEM LTD)	2
X	EP 0435480 A1	(JOHN BROWN AUTOMATION)	1
X,Y	EP 0434559 A1	(PROFILECOMETUBE) note Figures 2, 3, eg	X: 1, 3, 6 Y: 2

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